

ABSTRACT

A new method and package for the mounting of semiconductor devices. A silicon substrate serves as the device supporting medium, active semiconductor devices have been created in or on the surface of the silicon substrate. A solder plate is created over the surface of the substrate that aligns with the metal points of contact in the surface of the substrate. Semiconductor devices that have been provided with solder bumps or pin-grid arrays are connected to the solder plate. Underfill is applied to the connected semiconductor devices, the devices are covered with a layer of dielectric that is planarized. Inter-device vias are created in the layer of dielectric down to the surface of the substrate, re-routing interconnect lines are formed on the surface of the dielectric. Contact balls are connected to the re-routing lines after which the semiconductor devices that have been mounted above the silicon substrate are separated by die sawing. At this time, the separated semiconductor devices have two levels of ball interconnects, this can be further extended to for instance three levels of balls interconnect be connecting the second level of ball interconnect to a first surface of a Printed Circuit Board (PCB) while additional contact balls are connected to a second surface of this PCB.